

by
Jay Munro

Utilities

Paying the price for an HP LaserJet gets easier to justify with each passing year, but programming it to print just the way you want hasn't. Many of today's software applications handle routine LaserJet printing with ease, but if yours does not or if you need to set up your LaserJet for an unusual task, you face two formidable obstacles. First, you must decipher the cryptic PCL (Printer Command Language) escape sequences that must be sent to the printer. Second, you must figure out a way to get them there.

LZSELECT solves both of these difficulties. It gives you control over your LaserJet (or compatible) printer without your ever having to write a line of escape codes. And operating either by itself or in conjunction with Jeff Prosise's outstanding ETUP2 utility (*PC Magazine*, May 30, 1989), it provides a complete menu-driven system for setting up the LaserJet.

In case you're unfamiliar with it, SETUP2.COM is a memory-resident utility that pops up a menu of commands you can send to any printer from within most programs. The printer command menus are ASCII text files (called .PMF or Printer Make Files) and are displayed on-screen in pages of ten commands at a time. The PgDn and PgUp keys bring up lines beyond the first page. If you're familiar with the necessary PCL escape codes, you can construct .PMF files for the LaserJet with any ASCII text editor.

LZSELECT provides an easier way, however, because it knows all the codes that the printer needs and can even combine them in the approved PCL manner. It can create ASCII-format escape codes for SETUP2, send printer-ready escape sequences to the LaserJet directly, or output them to .DAT files you can later use from the command line or in batch files. Most of the PCL codes built into LZSELECT will work on the HP LaserJet Series II, IIP, and III printers, and those that are specific to the LaserJet III will simply be ignored if sent to earlier models. These last are grouped together so that you know which they are.

LZSELECT: Laser Printer Control The Easy Way

■ Without ever figuring out an escape code, you can set up your LaserJet to print exactly the way you want.

You can download an executable copy of LZSELECT from PC MagNet by following the instructions given in the sidebar, "LZSELECT by Modem." Because of space considerations, we are unable to print the source code here. However, you can also download the source code, LZSELECT.BAS (which is written for QuickBASIC 4, 4.5, BASIC 6 and BASIC 7 PDS) from PC MagNet. Or you can get the BASIC listing by mail or fax by sending a postcard with your name, address, and fax number (if applicable) to Utilities, *PC Magazine*, One Park Avenue, New York, NY 10016; Attention: Katherine West.

To create an .EXE program from the source using Microsoft QuickBASIC or BASIC 6, you enter the commands

```
BC /o /x LZSELECT;
Link /ex LZSELECT,,nul,LZS.LIB;
```

If you're using BASIC 7 PDS, you would enter

```
BC /o /s /fpa LZSELECT;
Link /ex LZSELECT,,nul,LZS7.LIB;
```

The library, LZS.LIB contains several as-

sembler routines that support LZSELECT. After compiling, you can delete the .OBJ file created by BC. The SETUP2.COM, SETUP2.ASM, and SETUP2.BAS, along with complete instructions for using this utility, can also be downloaded from PC MagNet.

USING LZSELECT

Because LZSELECT does not use any data or configuration files, it can be run from any directory; if that directory is on your DOS path, you can run it from any DOS prompt. The command-line syntax for LZSELECT is

```
LZSELECT [/2] [/B] [/F filename]
```

While LZSELECT will ordinarily be used to build .PMF files for SETUP2, it also lets you send a set of commands directly to the printer for testing or setup. The optional /2 switch overrides the default LPT1 output port setting. Note that this printer port selection modifies only the printer port for LZSELECT's output; it does not affect SETUP2's operation. Note, too, that if your LaserJet is connected to a serial port, you will need to execute the DOS MODE command listed in the printer manual to redirect the output from LPT1 to your COM port.

LZSELECT tests the current display type and tries to set screen colors for best viewing. Laptop and portable PCs that use color display adapters with monochrome displays, however, can fool the program into using colors that look fine on a color monitor but are hard to read on plasma or

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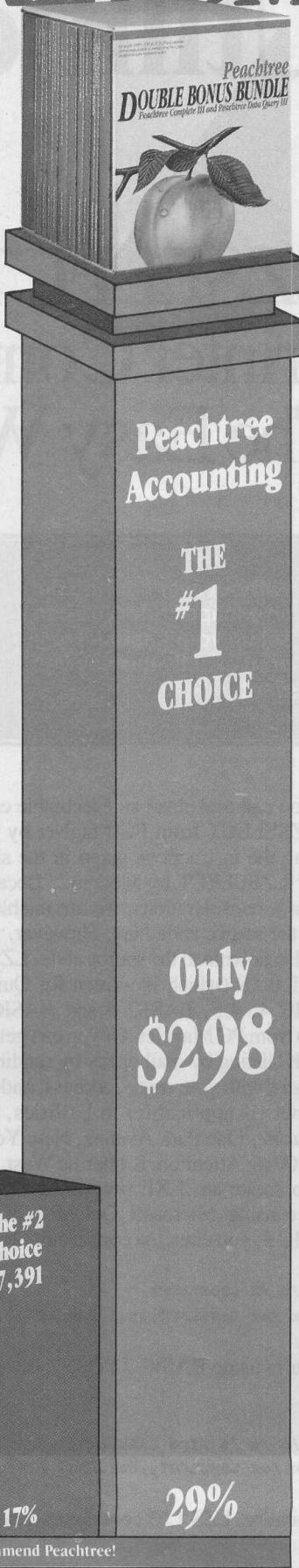
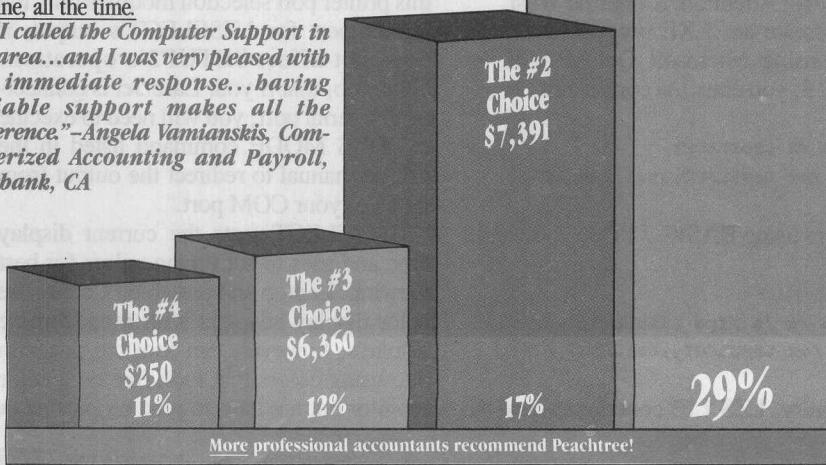
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LCD screens. The optional /B switch forces LZSELECT to use black-and-white for the default colors, making such screens easier to read.

The final optional switch allows you to enter a filename under which LZSELECT will store your subsequent command selections. If you don't supply a filename initially, you will be prompted for one when you save your selections. The path and filename you supply can be a maximum of 60 characters. Either way, if you enter a filename already in use, before saving the file later, LZSELECT will give you a chance to choose another name or to overwrite the original. Note: LZSELECT cannot load an already-created .PMF file for subsequent editing, even if you supply its filename initially with /F.

Most LZSELECT features are accessed by function keys or Alt-key combinations. Anytime after starting the program, pressing F1 will bring up the help screen shown in Figure 1. The Fill Pattern portion of this screen will serve as a guide to the six predefined patterns available through the Rectangular Fill section of LZSELECT.

As illustrated in Figure 2, the .PMF file format for SETUP2 consists of a menu title ("Hewlett-Packard LaserJet" is the default), followed by a series of menu text lines and associated escape codes. LZSELECT permits the use of up to 100 menu lines per file and up to 100 associated escape codes (or a total of 255 bytes) per menu line. You'll presumably never need so many codes, but it's nice to have all the

PC MAGAZINE		SETUP2 PMF FORMAT
Comment header	→	HP LaserJet Printer Make File Copyright (c) 1990 Ziff Communications Created by LZSelect 1.0
Menu title	→	Hewlett-Packard LaserJet
Menu	→	Reset printer;
text	→	Landscape small type;
lines	→	Envelope setup;
		Letterhead margins;
		27,"E" 27,"&I1o1o5.45c8D",27,"(s0p16.66H" 27,"&I1o81a3h14E",27,"&a30l70M" 27,"E",27,"&a15l70M",27,"&I1o50P"
		↑ Escape codes in ASCII format

Figure 2: While capable of operating as a standalone program, LZSELECT will normally be used to create Printer Make Files (.PMF) for the SETUP2 utility published in our May 30, 1989, issue. When a .PMF file such as the one being created here, is loaded into SETUP2, its commands can be executed from a menu that pops up within an application.

flexibility you could possibly want.

For each menu text line (which will constitute the left portion of Figure 2 and which can be displayed at any time by hitting the F5 toggle) you can type in up to 20 characters. Like Envelope setup in Figure 2, this will usually be used for a brief description of the corresponding escape code sequence(s). After selecting the code sequences needed for a given menu item, you can press F2 to begin a new menu text item (Letterhead margins, for example).

LZSELECT prompts you to enter the first menu text item just as soon as it executes. When you have entered this, the main menu will be displayed, as shown in Figure 3.

Selection of the actual printer commands is done via a series of highlight-bar

menus displayed on the left side of the screen. When you press Enter with the highlight on one of the 12 main menu categories (use the Up and Down Arrow keys to move the highlight) the various commands available under that heading will be displayed. Pressing Esc will take you back to the main menu.

If your menu text line reads "Initialize Printer", for example, the first command you would presumably select would be Printer Reset from the Job Control submenu. Simply highlight that command and press Enter. From the same submenu you might then select Portrait (or Landscape) orientation and hit Enter again. You might then Esc to the main menu and move down to pick a font to use when the printer is initialized.

As commands are selected, they are listed on the right side of the screen in the order they were entered. The escape sequences that correspond to each command selection are shown in SETUP2 (ASCII) format at the bottom of the menu screen. Note that 27 is the escape character and that the PCL command parameters are enclosed in quotes.

Figure 4 shows how LZSELECT looks during a typical command-selection process. In this illustration the menu text line is entitled "Weekly Report Setup" and the Cursor and Text category has been selected from the main menu. Note that if there are more than ten commands for a single menu text line, only the last ten will be shown, though the others entered previously remain in force.

The line length shown on the lower-

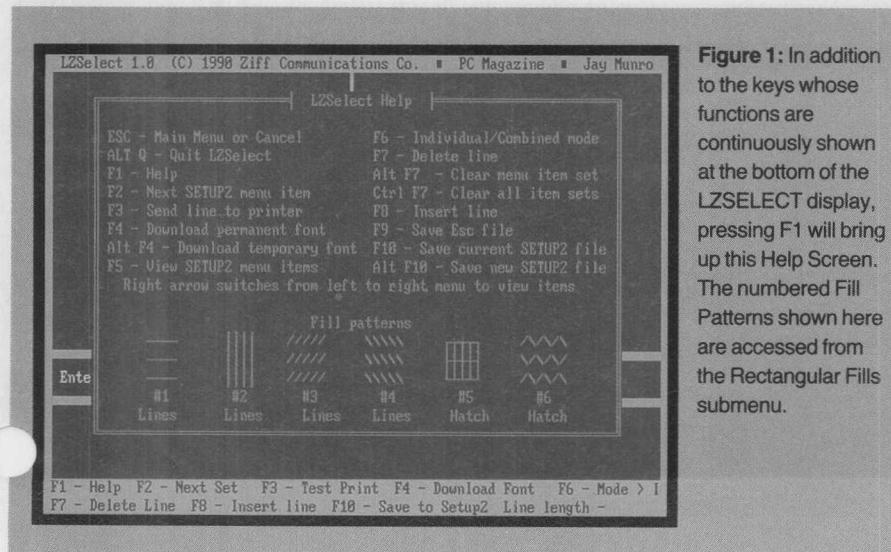


Figure 1: In addition to the keys whose functions are continuously shown at the bottom of the LZSELECT display, pressing F1 will bring up this Help Screen. The numbered Fill Patterns shown here are accessed from the Rectangular Fills submenu.

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right side of the screen is updated with each new command selected and reflects the actual length in characters of the escape sequence being built. If a command selected puts the length over 255 bytes, the warning "Maximum instructions reached" will flash in the prompt area.

To send escape sequences longer than SETUP2's 255-character limit, one alternative is simply to use F2 to create two or more menu items. Their menu text descriptions could reflect the order in which they should be sent, for example

```
1 Report Setup  
2 Report Setup cont.
```

A more elegant and efficient solution when faced with a menu line whose escape sequences total more than 255 bytes is to make use of PCL's provisions for combining commands. The sidebar "Grouping Escape Commands" explains the PCL rules, and the LZSELECT mode display, toggled by F6, indicates whether the escape codes are stored individually (the default) or (when PCL rules permit) Combined. Combining the escape sequences is both more efficient and permits longer escape sequences to fit within the 255-byte limit for each menu item's codes.

When you select a command that requires an input parameter, a prompt and a text field pop up in the center of the screen. Depending on the command, the size of the text field will reflect the number of digits allowed for that command. Note, however, that while the field allows up to three digits for a right margin, a value of 999 columns will be ignored by the printer. It's up to you to stay within valid parameters, consulting your printer's manuals if necessary. Several commands, such as the cursor position, allow + or - signs as part of their input; the width of their fields has adjusted accordingly. (See this issue's PC Lab Notes for a discussion of relative cursor positioning.) For ease of editing, the LZSELECT text editor supports the Ins, Del, Backspace, Home, and End keys.

If you select a command by mistake, simply press F7, move the highlight bar onto the offending line, and press Enter to delete that line and update the display. Pressing Alt-F7 deletes all currently selected commands, if you want to change or cancel the entire menu item. To cancel and

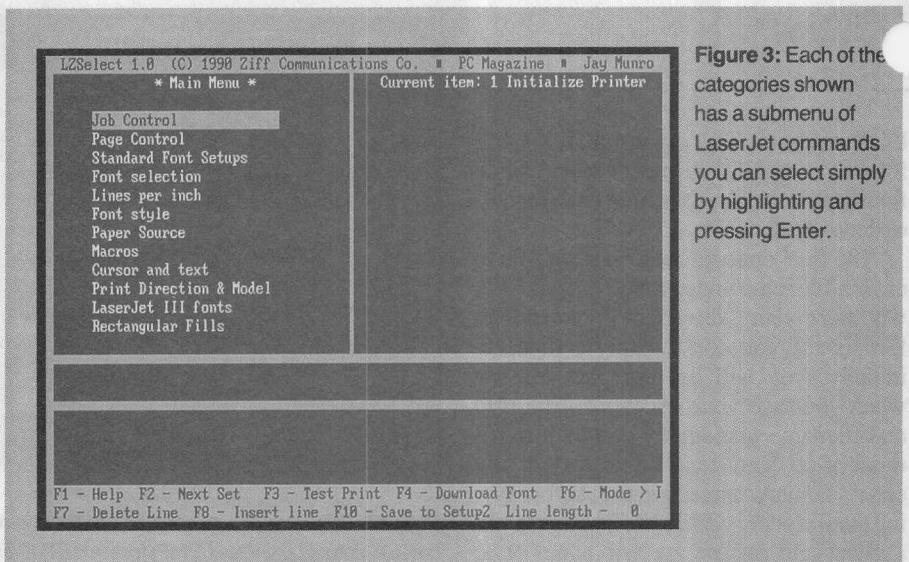


Figure 3: Each of the categories shown has a submenu of LaserJet commands you can select simply by highlighting and pressing Enter.

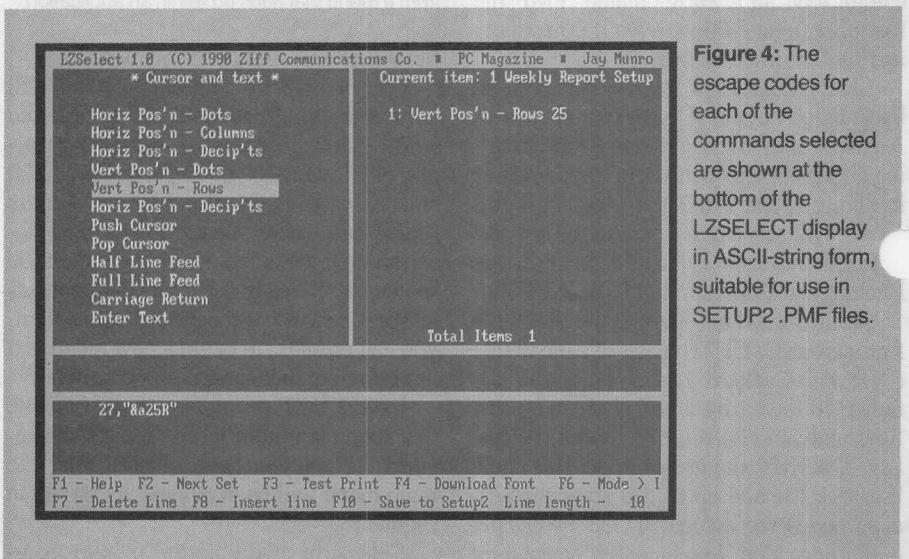


Figure 4: The escape codes for each of the commands selected are shown at the bottom of the LZSELECT display in ASCII-string form, suitable for use in SETUP2.PMF files.

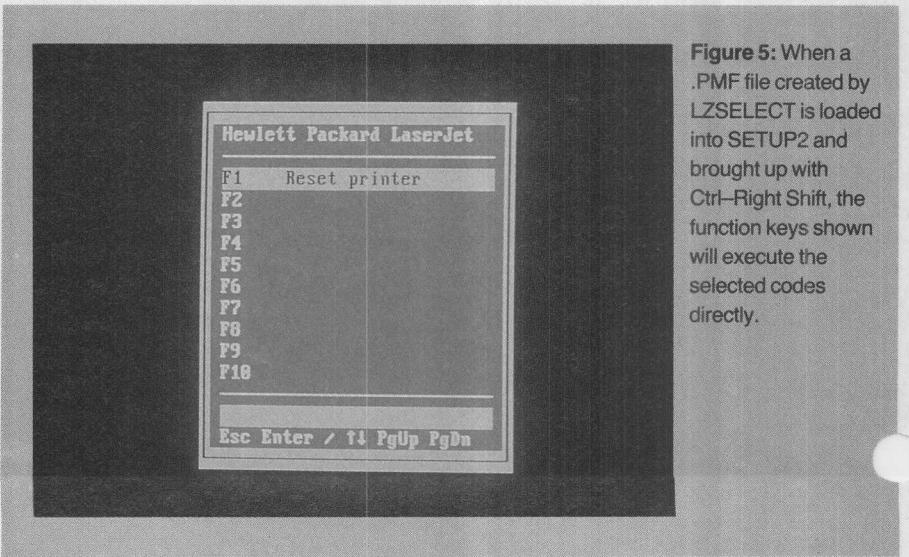


Figure 5: When a .PMF file created by LZSELECT is loaded into SETUP2 and brought up with Ctrl-Right Shift, the function keys shown will execute the selected codes directly.

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restart everything, press Ctrl-F7.

Conversely, to insert a command between two that you have already selected, start by highlighting the command you want to insert from the command menu. Press F8 to put the highlight bar on the instruction list and move it to the line before which the new command should go. Then press Enter to insert it into the list. If the command needs your input, you will be prompted before the line is inserted. In both insert and delete modes, you may change your mind and cancel the operation by pressing Esc.

As previously mentioned, when you have completed your command selections for the current menu line item, pressing F2 will allow you to begin a new menu line entry. You'll be prompted for a new menu text description, and the last set of commands will be cleared from the display. If you change your mind after pressing F2, press Esc to return to the last menu line. Note, however, that after you have pressed Enter and the new menu item has been displayed in the instruction area, the previous item cannot be changed.

To save your .PMF file, press F10. You will be warned if a file with the same filename already exists. To overwrite an existing file, press Y at the warning. Once the file has been saved with the current name, each subsequent save will use the same name. If you want to change the filename, press Alt-F10 and you will be prompted for the new name, which will then become your current filename.

LZSELECT does not perform extensive error-trapping on filenames, however, so be careful to avoid names such as CON.TRL and NUL.FIL, as well as invalid filenames such as PRESET..PMF.

Once the file has been saved, press Alt-Q from the main menu to quit. If you try to quit before saving, LZSELECT will ask whether you want to save the file. LZSELECT keeps track of changes, so if you save a file once and then make an addition, you will be prompted to save again before exiting.

The .PMF file is now ready to be loaded SETUP2, using the command

filename

will then load the LZSELECT 1 become memory-resident.

By default, SETUP2 uses the Ctrl-Right Shift key combination to pop up over a running application. As shown in Figure 5, SETUP2 uses function keys to send the commands you have identified with menu text descriptions to the printer. Subject to the usual TSR limitations, SETUP2 can be uninstalled from memory by entering

SETUP2 /U

As indicated at the outset, LZSELECT is by no means limited to operation from within SETUP2. In the sections that follow, we will explore some of LZSELECT's additional capabilities and learn how to handle any special situations you may encounter.

ADDITIONAL CAPABILITIES

LZSELECT gives you a choice between using standard and customized setups. To create your own setup for printing a spreadsheet with 16.67 characters per inch

(cpi) in landscape mode, for example, you could begin by choosing Standard Font Setups from the main menu and then go on to select the font style, line spacing, and so forth with additional commands. On the other hand, for a quick, simple setup you might instead choose Landscape 16cpi from the Standard Fonts menu, and the full escape code for font, size, spacing and orientation will be selected in one shot.

LZSELECT does not impose any rules of its own on your command selections, so you must exercise some care in arranging them in the proper order. Sending a printer reset command, for example, clears all temporary fonts and macros, clears the HP LaserJet's print buffer and restores your power-on defaults. For this reason, you may want to position the printer reset at the beginning of the set of escape sequences, so it won't clear any instructions that may be sent in the same set. Note that a page eject is the usual side effect of sending a reset when data is present in the printer's

GROUPING ESC COMMANDS

by Jay Munro

The SETUP2 format requires that instructions be delimited by quotation marks, thus adding characters to the basic instruction and taking up more storage space. For example, a simple ten-column left-margin command is

27,"&a10L"

Adding a right margin of 75, this becomes

27,"&a10L",27,"&a75M"

Although this code is not itself terribly long, in combination with other commands the line could reach the 255-character limit. To prevent commands from becoming too lengthy, the PCL language of the LaserJet printers permits some commands to be combined and sent in groups.

Notice the similarities between the two commands above. Both, in addition to the 27, have the same first two characters, &a. In PCL jargon these are the Parameterized and Group characters. By dropping the second occurrence of the 27 (the escape character) and the redundant parameterized and

group characters, the escape code can be shortened in a single command. The capital letter at the end of each of the sequences is called the Termination character. When codes are combined, all but the last termination character must be reduced to lowercase, but the last Termination character must be entered in uppercase. When combining the two sequences shown above, therefore, the resulting command is

27,"&a10175M"

This reduces the former total of 21 characters for the separate commands to a total of 13 characters, which is enough of a savings to be able (if needed) to add another command. Moreover, by grouping commands, less time is taken sending them, less disk space is used, and less printer memory is used.

Most, but not all, commands can be combined. It's important to remember that the ESC, Parameterized, and Group characters must be the same for any grouping. Moreover, advanced commands, such as macros, must never be grouped. So when in doubt, it's best to waste a little memory and use individual sequences. ■

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memory.

Another printer command that is sensitive to the order in which it is used is the Orientation command. To ensure predictable results, changes between portrait mode (the default orientation) and landscape mode should be made only at the start of a new page. All HP LaserJet series II, IIP, and III printers can use only one orientation per page. But starting with the HP LaserJet III, a new command was introduced to change the print direction. Unlike page orientation, LZSELECT's Print Direction and Mode command allows text to be printed in any combination of portrait (rotate 0°), landscape (rotate 90°), reverse portrait (rotate 180°), or reverse landscape (rotate 270°) on a single page.

HANDLING SOFT FONTS

LZSELECT allows you to both download and select your LaserJet soft fonts. To download a *permanent* font—one that will not be deleted by a Printer Reset command—you begin by pressing F4. To download a font that can be deleted with a soft reset, hit Alt-F4. In either case, you'll be prompted for the name of the soft font to be downloaded. At the prompt, you must also enter the path, if the font is not in the current directory.

LZSELECT will then check to see if it can find the font, and if so, will prompt you for an ID number to assign. The font ID can be any number between 0 and 32,767, but you must *remember what it is*. By using different ID numbers you can download any number of fonts with LZSELECT, subject only to your printer's limits. Your LaserJet manual will tell you how many fonts your model can hold (32 for the LaserJet II, for example). Remember also that if you use large-point-size fonts, you can exhaust the printer's memory long before you reach this number.

To select a font you have downloaded, you specify the Soft Font ID # command from the Font Selection menu. (This is why you must remember the number you used.) LZSELECT will then send the command to make your selected font the LaserJet's primary font. All text will then be printed with that font until another is selected. If the Soft Font ID you specify has not been downloaded, the HP LaserJet printer defaults back to its current font.

THE CURSOR AND TEXT COMMANDS

A wide variety of commands is contained under this main menu category, including the Push Cursor and Pop Cursor commands you may use in connection with constructing LaserJet macros. (For further information on this subject, see the sidebar "Using Printer Macros.") One of the most versatile commands under the Cursor and Text Menu heading, however, is simply designated Enter Text.

If you need to create a special escape sequence that is not contained in LZSELECT, for example, you can choose the Enter Text option and simply type in the escape sequence you want, using the 27, commas, and quotes of the other commands as your model.

Again, sometimes you need to send more than just escape codes to the printer. The Enter Text option from the Cursor and Text Menu enables you to enter up to 244 characters to be printed. Depending on

how much space is left of the 255-character maximum for a given menu line, LZSELECT will prompt you for up to four strings of 61 characters each. This odd-seeming number derives from the fact that although SETUP2 will accept up to 255, each string must include quotation marks and a comma, which takes up to 11 characters from the total. What's more, if you have already specified 130 characters of escape codes on a given menu line, you can enter only 119 additional characters. And you can, of course, always get a new menu line altogether by pressing F2.

LZSELECT's Enter Text option also provides a convenient way to print envelopes. Start by selecting Landscape mode from the Job Control menu, and the envelope size and Envelope Feed from the Paper Source menu. Then type in your return address using the Enter Text selection from the Cursor and Text menu, adding

USING PRINTER MACROS

by Jay Munro

Macros provide a way to execute repeated commands without having to re-enter them each time. LaserJet macros are simply a collection of regular PCL commands that are surrounded by a Start Macro and an End Macro command and introduced by an identifying Macro ID number from 0 through 32,767. One macro can call another macro, although such nesting is limited to two levels. With a LaserJet Series II, up to 32 macros can be defined. With the LaserJet IIP or III, up to 32,767 may be created, assuming you have enough printer memory. LZSELECT supports all the LaserJet macro options currently available.

LZSELECT combines the ID specification command with the Start Macro command, making macro creation that much easier. To begin a macro, select Start Macro # from the Macros menu. Answer the prompt for a number and press Enter. Any subsequently selected commands—margin commands, font changes and styles, and even rectangular fills—will be recorded within the macro until you select either End Perm Macro or End Temp Macro.

If you want the macro to survive a printer reset, select End Perm Macro; otherwise, use End Temp Macro. The

End Macro commands terminate only the last macro ID specified, so if you use the Set New Macro # to nest a macro, be careful to end both macros by setting the original macro number and calling End Macro again to finish.

Once created, a macro can be executed, called, or overlaid. When a macro is *executed*, any changes to the printer settings (such as font changes) made within the macro will "stick," remaining in effect even after the macro commands are done. If the macro is *called*, the changes will be discarded when the macro is done, the one exception being the cursor location. When a macro is *overlaid* it is called automatically at the end of each sheet printed. Overlays are good for making footers or letterhead paper. If the cursor location must be preserved on a call or overlay, select Push Cursor at the start of the macro and Pop Cursor at its end from the Cursor and Text menu.

There is one caveat when using macro commands: Do not save them in the combined mode with LZSELECT. Because most of the macro escape sequences have the same parameterized and group characters, if they were combined, they would all end up being grouped together, which would make the macro end as soon as it started! ■

LZSELECT BY MODEM

The programs published in *PC Magazine* are available by modem from PC MagNet.

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To download LZSELECT.EXE or its QuickBASIC source listing, log on to PC MagNet. Enter GO UTILITIES or choose PC MAGAZINE UTILITIES from the top menu, then DIRECT UTILITY DOWNLOAD from the next menu. Enter the filename, then select the file you want to download from those presented. Answer yes (Y) to DO YOU WISH TO DOWNLOAD? Press Enter to see the transfer protocols. Choose a protocol and download the file.

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Jay Munro

LZSELECT Command

January 29, 1991(Utilities)

Purpose:

Constructs and sends LaserJet escape sequences either directly, via a SETUP2.COM (*PC Magazine*, May 30, 1989) menu (PMF) file, or via a DOS file that can be COPYed to the printer from the command line or used in a batch file.

Format:

LZSELECT [/2] [/B] [/F filename]

Remarks:

The optional /2 and /B parameters set LZSELECT to use LPT2 for its own printer output and a black-and-white display for an LCD or plasma screen. If a filename to be opened for construction of a SETUP2 Printer Make File menu is not supplied initially using the /F switch, one must be supplied at the first screen. A descriptive menu text line of up to 20 characters is then entered, after which highlighted selections from the LZSELECT menus automatically build the command escape sequences (up to 100 ESC codes or 255 bytes per line). These are displayed in the default ASCII-string (SETUP2) format at the bottom of the screen. Prompts are supplied for required parameters.

F6 toggles between combining command sequences where HPPCL rules permit and keeping them as individual strings. A selected command can be deleted with F7 and inserted with F8. Alt-F7 clears all current commands for that menu line, and Ctrl-F7 clears all current commands in the file. New menu command lines, up to 100 per file, can be opened with F2. Files can be saved in .PMF format with F10; Alt-F10 prompts you to save under a new filename. Selected commands can be converted into regular printer command sequences and sent directly with F3, or they can be converted and saved as a COPYable DOS file with F9.

Text or escape strings not contained in LZSELECT can be manually entered in ASCII-string form, using the Enter Text command from the Cursor and Text menu selection. F4 and Alt-F4 are used to download soft fonts as permanent and temporary, respectively. They prompt for a file-spec and a Font ID number (0-32,767) which is also used when that font is selected for use by a printer command.

A PMF menu prepared by the LZSELECT file can be loaded into SETUP2 by entering

SETUP2 filename

SETUP2 is a memory-resident utility that uses Ctrl-Right Shift for its hotkey to pop up over a running application. Like LZSELECT, SETUP2 and its related files can be downloaded from PC MagNet.

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the necessary carriage returns and line-feeds selected from the same menu.

After entering the return address, add a couple of line-feeds and then use the Left Margin command from the Page Control menu to set the left margin to 35. This part of the envelope printing task might well constitute a menu item by itself, so that when SETUP2 sends the codes, the envelope will be set up to have the return address in the upper-left corner and will be ready for you to type in the addressee. You can then use SETUP2's direct mode (accessed from the SETUP2 menu by pressing the forward slash (/)) to send the name and address lines, enclosed within quotation marks, to the printer. To print out, either send a form-feed from SETUP2, or press the Form Feed button on the HP LaserJet printer. The printer will prompt you to insert an envelope and print.

OUTPUT MODES

The escape sequences you build with LZSELECT can be output in two forms that are somewhat different: SETUP2 ASCII-format escape sequences or printer-ready escape sequences. The escape sequences used by SETUP2 are actually *pseudocodes* that must be interpreted and then converted into the codes that the printer can understand as commands. SETUP2 interprets these pseudocodes by sending an escape character (^]) in place of the 27 and by stripping away the quotes and commas. The control characters—form-feed (12), line-feed (10), and carriage return (13)—are also converted to their ASCII equivalents (^Q, ^S, ^P) before being printed.

As escape sequences are built, LZSELECT stores the codes in the SETUP2 format, which is displayed on the lower portion of the screen. When F10 is pressed, these codes are saved to a file, ready to be used by SETUP2.

To send the codes you construct directly to the printer *without* going through SETUP2, hit F3. Pressing F3 converts the ASCII-format codes into actual escape sequences the printer needs and sends them out through the LZSELECT printer port you specified on the command line (LPT1 is the default). Using F3 is not only a handy way to test an escape sequence; it can also be used to make a quick printer setup you will not be repeating often.

PC MAGAZINE UTILITIES UPDATES

Like all good software, the programs presented in *PC Magazine* are upgraded and improved. The only way to obtain the modified versions is to download them from PC MagNet. Here is a partial list of the programs that have been upgraded to fix minor bugs and system incompatibilities:

ANSI.COM, Version 1.3
BEN55.ARC (Benchmark Series, Version 5.5)
CARDFILE.COM, Version 1.1
CHKFRAG.EXE, Version 1.2
DIRMATCH.COM, Version 1.1
EMS40.SYS, Version 1.1
LITES.COM, Version 1.1
LOG.COM, Version 1.1
PCMANGE.EXE, Version 1.1

RN.COM, Version 2.0
SLICE.COM, Version 1.3
SNIPPER.COM, Version 1.2
TPFST-AT.COM, Version 1.1
ZCOPY.COM, Version 1.2

For a complete list of all the programs available from the PC MagNet Utilities Database, download UDCAT.ARC.

A downloadable index to *PC Magazine*'s product reviews is also available. PCM.EXE is a self-extracting file that contains the *Computer Library PC Magazine* Reviews Index for January 1988 to June 1990. It requires the search files in PCSRCH.EXE. Please read the information file PCM.INF before you download any of these files. ■

Further, LZSELECT can build a file of printer-ready escape sequences that can be copied directly to the printer from the command line or used in a batch file. You may prefer this method to using SETUP2 if you have a single printer setup or your application program has problems with TSRs. Pressing F9 brings up a prompt for a filename under which to store the current set of escape sequences. The file will contain only actual printer codes, without menu items, headers or comments, and the like.

As an illustration, let's assume you need to print five copies of a daily computer usage log, LOGFILE.DAT—one for each accountant in your company. The format must be landscape mode, and in the line-printer font to fit on one page.

Using LZSELECT, you would choose the commands for Reset, the Landscape 16.66 pitch font, and 5 copies. Since this is a daily chore, you want to create a batch file to do it, so you press F9 to enter a descriptive filename—5PAGE.DAT—and then press Enter. The file 5PAGE.DAT now contains the printer escape sequences that are needed to tell the printer to format and print five copies of each page of text sent.

You can then create the batch file in which you need to place 5PAGE.DAT by going to the command line and entering

```
COPY CON PRINT5.BAT
COPY 5PAGE.DAT LPT1
COPY LOGFILE.DAT LPT1
ECHO ^L > LPT1
```

The form-feed character (^L) in the last line is entered by pressing Ctrl-L. (It can also be entered by holding down the Alt key, typing 12 on the numeric keypad, and releasing Alt.) To save the file, press Ctrl-Z or hit F6 and then press Enter. The DO message "1 File Copied" shows the batch file has been saved.

When the batch file is run, the page setup escape codes created by LZSELECT are copied to the printer, then the LOGFILE is copied, followed by the form-feed command to finish the job. The filenames you select can differ, of course, but the format will be the same.

As a final note, *WordPerfect* users will be interested to know that they can also use LZSELECT to create printer command files for special setups. In order to invoke your custom command file from *WordPerfect*, press Shift-F8 for format, select O for Other, P for Printer functions, P again for Printer command, and F for Filename. At this point, enter the name of your custom command file, and press Enter twice. When your document is printed, *WordPerfect* will send the file to the printer at the point you selected. One word of caution is in order: If you change printer parameters, such as margins, fonts, and so on, *WordPerfect* may give unpredictable results. You should consult the *WordPerfect* manual if you want more details on this subject.

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